marketing issues in the computer world, most Americans are still limited to this 40-bit strength encryption as well, because our companies develop one product for worldwide distribution.

What will it take for the federal government to learn that consumers are opposed to having ''Big Brother'' interfere with their technology choices. We all remember the failed Administration attempts on Clipper I and Clipper II. Yet, the federal government persists in its efforts to peek into the private lives of law-abiding American citizens. The latest salvo by FBI Director Louis Freeh in demanding government mandated encryption for domestic users is the latest example of government obstruction of private decisions by American consumers and business opportunities for American innovators. If Director Freeh gets his way, the federal government will have even greater authority to peer and peek into the private lives of American citizens. ''Big Brother'' as feared by law-abiding Americans has a powerful champion at the Federal Bureau of Investigation.

While this war of attrition is taking place, we are losing in the trenches. Foreign vendors are happily supplying stronger 128-bit encryption to our foreign purchasers. Some of these vendors have publicly thanked the U.S. government for helping them to develop thriving businesses. Importantly, current U.S. policy represents a surrender of an industry where our innovative workers and companies are technologically superior. We are surrendering jobs and economic opportunities both today and for the long term. There are many examples from my own State of Washington, usually small start-up firms eager to grow, diversify and develop new high-tech applications in computer hardware and software. These firms regularly point out to me the names and business histories of their foreign competitors that have gladly taken business opportunities from Washington firms restricted by ineffective government mandates.

It is time for the United States to acknowledge that we no longer exclusively control the pace of technology. Purchasers around the world can download software off of the Internet from any country by simply accessing a website. Foreign purchasers have turned to Russian, German, Swiss and other foreign vendors for their encryption needs. We are truly trying to put the genie back in the bottle—a genie so nimble that it can transfer in seconds from one location to another using a modem over a traditional telephone line.

U.S. law enforcement seems to believe that Americans will recapture this market once our industry has developed key recovery systems for 128-bit or stronger encryption technology. This is extremely naive in my opinion. All the world will know that the U.S. government approved export technology will enable U.S. law enforcement to view encrypted information. Most foreigners believe the U.S. government will use this capability to spy on them; for law enforcement, political and economic information. Foreigners will simply buy elsewhere, period. It's pretty simple to me. What foreign entity would want to surrender information to the U.S. government when they can easily avoid this by purchasing someone else's product?

Again, I turn to the approach advocated by Senator BURNS and Senator LEAHY. S. 909 as adopted by the Senate Commerce Committee simply does not go far enough. While it makes some minor modifications to export controls, it also goes in the totally wrong direction by starting down the path of domestic controls on encryption.

Washington state and American companies deserve the opportunity to compete free from government restrictions. Their role in the international marketplace should be determined by their ingenuity and creativity rather than an outdated, ineffectual system of export controls. The time to act is now, the longer we wait, the further behind America gets on this issue.●

RECOGNITION OF GIRL SCOUT GOLD AWARD RECIPIENTS

● Mr. JOHNSON. Mr. President, I want to take this opportunity today to recognize Misty Hansen of Girl Scout Troop 1080. Misty is an outstanding young woman who has received the Girl Scout Gold Award from the Nyoda Girl Scout Council in Huron, South Dakota. The Girl Scout Gold Award is the highest achievement award in U.S. Girl Scouting. This award exemplifies her outstanding feats in the areas of leadership, community service, career planning and personal development.

Misty is one of just 20,000 Gold Award recipients since the creation of the program in 1980. In order to receive this award, Misty completed the many Gold Award requirements. She earned three interest project patches: the Career Exploration Pin, the Senior Girl Scout Leadership Award and the Senior Girl Scout Challenge. Also, she created and executed a Girl Scout Gold Award project which included researching the history of the first 30 years of the Nyoda Girl Scout Council.

Mr. President, I feel Misty deserves public recognition for her tremendous service to her community and her country. I offer my congratulations to her for her hard work and effort in reaching this milestone.●

JOSEPH HENRY, THE SMITHSONIAN AND FREDERICK SEITZ

Mr. MOYNIHAN. Mr. President, Friday, the 7th of November 1997, on the occasion of the bicentennial of the birth of Joseph Henry, the Joseph Henry Medal was presented to Dr. Frederick Seitz at a dinner of the Smithsonian Council. Clearly, this was a special occasion, and it was singularly appropriate that Frederick Seitz should be the honoree. The citation of the splendid gold medal reads:

The Board of Regents gratefully presents the Joseph Henry Medal to Frederick Seitz in recognition of his manifold contributions to The Smithsonian Institution. His advancement of the Smithsonian's research and educational programs in the sciences, history, and the history of science has exemplified the ideals of James Smithson's mandate . . . ''for the increase and diffusion of knowledge.''—May 4, 1997.

Having received the medal, Dr. Seitz, with his enormous erudition and no less prodigious self-effacing manner, presented a paper of great interest. Entitled, Joseph Henry: 200th Anniversary of Birth, he wrote of the belated appearance of science as a large-scale activity in the American Republic, but also of four early pioneers: Benjamin Franklin, Benjamin Thompson, Henry A. Rowland, and Joseph Henry himself. Which of us would know that Franklin discovered the Gulf Stream? That is just one of the absorbing details of this fascinating disquisition. I ask that it be printed in the RECORD in honor of Frederick Seitz, Joseph Henry, and all that splendid company.

The material follows:

JOSEPH HENRY; 200TH ANNIVERSARY OF BIRTH

When I first heard the rumor that I would receive the Joseph Henry Medal on this special anniversary, I assumed it was a case of mistaken identity. Very friendly calls from Senator Moynihan, Homer Neal and Marc Rothenberg, however, finally carried conviction. Needless to say I will continue to experience a sense of awe in playing a role on this special anniversary since the scientific community, of which I have been part for most of my life, owes so much to Henry, as I shall presently relate.

Our country, had so many difficult practical problems to solve in its early days, that it did not take much interest in the fundamental aspects of science, in contrast to the European countries, until the end of the nineteenth century, that is, about a hundred years ago when it created what was then called the National Bureau of Standards. Even this step had a very practical aspect since we were encouraging exports and wanted to be in tune with standards of manufacture internationally as well as at home. It is true that we did have the closely linked Smithsonian Institution and National Academy of Sciences at that time. However their existence was in the last analysis tied closely to the unsolicited gift in 1832 of James Smithson, an English scientist who admired the promises for the future of mankind that our republic offered. Moreover, he felt that it was inevitable that we would eventually become deeply involved in the pursuit of basic science.

Even though our country did not encourage the development of the basic sciences until the century we are now leaving behind, we did manage to produce from our own soil a few world-class scientists, including four truly great physicists, not least Joseph Henry, during the previous two centuries. I would like to say a few words about each.

The first was no less a person than Benjamin Franklin, born in Boston in 1706, but more generally linked to Philadelphia, his adopted home. We all know about the experiment with lightning and the kite and his research with lightning arrestors, however, this is only part of the story. He discovered, as a result of extensive correspondence, that our continental weather tends to have a

strong eastward drift; he discovered what we now term the Gulf Stream which encircles the Atlantic Ocean, although he falsely ascribed it not to winds and Coriolis forces, but to the influence of the emergence of a yet undiscovered underground river.

Perhaps even more remarkably, he was apparently the first person to provide a good measure of molecular dimensions. He noted that when a quantity of the right kind of oil is poured onto water it spreads rapidly at first, but then stops spreading and retains cohesion. He concluded that the thickness of the oil film at the point of maximum spread mut be linked to what we would now term the size of its molecular constituents. Using measured quantities of oil he obtained an entirely reasonable value for those dimensions.

The second great scientists, namely Benjamin Thompson, is probably entirely unknown to many of you. He was born in Woburn, in what was then the colony of Massachusetts in 1753, and developed a strong interest in science during his youth. He was not sympathetic to the Revolution and moved to England in 1776 where he joined the military and served throughout the war as an administrator. In 1794, after serving in various roles in England and on the continent he was offered a high post in the Bavarian government which he held for eleven years. There among many other activities he supervised the boring of canon in the royal arsenal. Being highly observant, he noted that the extent to which the canon became heated during the drilling was essentially proportional to the length of time the drilling had taken place. He concluded that the heat content of the metal was a form of energy closely related to the energy of work. This proposal stood in sharp contradiction to the popular theory of the time to the effect that heat was the manifestation of the presence of a special weightless fluid called phlogiston. He wrote a convincing treatise on this topic, thereby opening the doorway to the field of thermodynamics and statistical mechanics which occupied some of the best scientific minds during the next century. I should add that the great Chemist Lavoisier, who was guillotined in 1794 and whom Thompson knew, had also come to the conclusion that the phlogiston theory must be wrong. Thompson's treatise pointed the way to a new positive approach.

Thompson, incidentally, joined with Joseph Banks, the President of the Royal Society in establishing the Royal Institution in London where Humphrey Davy and Michael Faraday later carried out their great researches and gave popular public lectures on science. It is easy to imagine that Smithson had the Royal Institution in mind as a role model for our country when he gave the money to create the Smithsonian. I should also add that Thompson came to terms with his native land at the end of the Revolutionary War, establishing good relationships with the Massachusetts community.

Skipping chronological order for the moment, the third great American scientist in my list is Henry A. Rowland, born in Honesdale, Pennsylvania in 1848. He received his higher education at the Rensselaer Polytechnic Institute in Troy, New York, and was appointed to the chair in physics at the Johns Hopkins University when it opened its doors in 1876. He carried on research in many areas of physics, but is probably best known for the development of a machine which engraved on a material such as glass so-called diffraction line gratings that were of special use in separating different wavelengths of light. He was also interested in telegraphic equipment and invented a widely used form of teletype machine.

Rowland gained early fame as a result of an experiment he carried out in Europe in the laboratory of Hermann Helmholtz in 1875, the year before he took residence in Baltimore. In the previous decade, the very brilliant Scottish physicists, James C. Maxwell, had collected all known information concerning electromagnetic phenomena and placed it in the form of a mutually consistent set of four mathematical equations, generally known as Maxwell's equations. To achieve what his intuition told him would provide appropriate symmetry and balance in the equations, he modified one of the set of four. In effect, the modification amounted to saying that an isolated, moving electric charge would have a magnetic field related to the velocity associated with it, but one so weak for normal velocities achievable at the time that it would be very difficult to measure. Helmholtz, recognizing that the young American was an exceedingly talented experimenter, suggested that he attempt to measure that field, which Rowland did with ingenuity and notable success in a remarkably short time. It should be added that Rowland had to repeat the experiment twice in later decades in order to convince others who had tried to duplicate his work without success.

I should also add that Maxwell noted that one set of solutions to his modified equations describe free electromagnetic waves traveling with the speed of light in a vacuum. He decided that ordinary visible light must consist of electromagnetic waves. Helmholtz was quick to pick up on this and convinced his brightest young colleague, Henrich Hertz, to look into the matter on a laboratory scale to see if he could generate much longer waves, independent of a light source, using available electrical equipment. The ages of wireless telegraphy, radio, television and radar loomed over the horizon.

It would be equivalent to shipping oil from Texas to Saudi Arabia for me to present a detailed biography of Joseph Henry on this occasion since his background is well known to most of you. In brief, he was born in Albany, New York, just 200 years ago and spent a portion of his early years living with his grandmother in nearby Galway, a few miles west of Saratoga. Incidentally, if you chance to pass through Galway please note the handsome high school building, probably built in the 1920's, which bears Henry's name. He studied at the Albany Academy, which still exists, and early on had difficulty deciding whether to become an actor or a scientist. Fortunately, science won. He began a series of highly innovative experiments with electromagnets and soon discovered the induction of electric fields by changing magnetic fields—the basis for one of Maxwell's equations. Michael Faraday, in England, made the same discovery somewhat later, but published his results before Henry managed to. Never the less the international community has given credit to Henry by naming the unit of measurement of magnetic inductance after him. In connection with this research, he invented the so-called electric transformer, so valuable in alternating current circuits.

Although well established at the Albany Academy, he accepted an appointment at what is now Princeton University in 1832, and continued to carry on his research there, focusing in part on various aspects of telegraphy. Much of his original equipment is well preserved in the physics department.

In 1846 he was offered the post of Secretary of the newly created Smithsonian Institution which he accepted even though he was reluctant to leave the special environment that he had enjoyed at Princeton. He was soon widely recognized as the dean of American science as he developed the new institution into a center for research as well as public exhibitions related to science. He was to serve in the post for thirty two years.

In 1863, when the Civil War broke out, a small group of scientifically oriented individuals in Washington, led by Alexander Bache, a great grandson of Franklin, and Commodore Charles Davis, succeeded in having a bill that created a National Academy of Sciences passed by the Congress. Their intention was to rally the available scientific community into research associated with the war effort. The bill was sponsored by Senator Henry Wilson of Massachusetts. President Lincoln signed the charter. Henry took an interest in the activities of the new organization from the start, recognizing fully its potentialities. During the course of the war Henry became a good friend of President Lincoln who expressed much admiration for him.

When, at the end of the war, the founders were at somewhat of a loss in deciding what to do with the Academy during peacetime, Henry agreed to become its president and retained leadership until his death in 1878. During that period he essentially made the Academy a temporary wing of the Smithsonian, holding regular scientific meetings, expanding the membership and challenging the members to do everything they could to increase the amount of basic scientific research being carried on in the country. By the time of his death, the National Academy, although still closely tied to the Smithsonian, was a well-running organization prepared to play a major role in guiding the progress of good science in the Republic.

I should add at this point that immediately after World War I, another great Secretary of the Smithsonian, Charles D. Walcott, who had served as the very effective president of the Academy during that war, succeeded in obtaining private funds which made it possible for the Academy to have a new home of its own on Constitution Avenue. Walcott, incidentally, was also a New Yorker, having been born in New York Mills near Utica in 1850.

Our debt to Joseph Henry can perhaps be summarized by saying that, in addition to establishing a high standard for scientific research through his own laboratory work, he encouraged general acceptance of those standards and took leadership in establishing National institutions which could carry them forward. In other words, he did for the promotion of science in our country what Washington had done in helping to establish the republic in which we have the good fortune to live. I can think of no higher praise.●

DANIEL URBAN KILEY, 1997 NATIONAL MEDAL OF ARTS WINNER

Mr. LEAHY. Mr. President, it is with great pleasure that I pay tribute to Daniel Urban Kiley, a landscape architect from Charlotte, Vermont, who was named by President Clinton as recipient of the 1997 National Medal of Arts. Established by Congress in 1984, this award honors individuals who have made outstanding contributions to the arts in our nation.

My wife, Marcelle, and I have enjoyed the work of Daniel Urban Kiley for many years and I am honored that a Vermonter, and a friend, has received this national recognition.

I ask to have printed in the RECORD a list of Mr. Kiley's accomplishments put together by the awards committee.

The material follows:

As one of this country's most eminent landscape architects, Daniel Kiley combines